AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently amended): Method for controlling automatic or automated transmission downshift used for power braking of a vehicle and comprising a group of at least two standard downshift laws ($C_{(n)(n-1)}$, $C_{(n+1)(n)}$) between a gear n+1 and a gear n, and between a gear n and a gear n-1, respectively, as a function of the speed at the wheel (V) and acceleration pedal depression (E), ~~characterized in that it consists in~~ comprising, when the driver begins to brake when the vehicle is in gear n+1:

defining, below a certain arbitrary threshold ($E_{threshold}$) of depression of the acceleration pedal, a group of new downshift ~~law~~ laws intended to replace the standard downshift ~~law in activity and defined~~ laws, each new downshift law being shifted by a gap ($\Delta_{(n)(n-1)}$, $\Delta_{(n+1)(n)}$) ~~of the gear shifting law in activity~~ with respect to the respective standard downshift law, this gap ($\Delta_{(n)(n-1)}$, $\Delta_{(n+1)(n)}$) being calculated between the arbitrary threshold ($E_{threshold}$) of depression of the acceleration pedal and the depression zero of the acceleration pedal, and

downshifting the transmission by at least one transmission ratio if the calculated gaps ($\Delta_{(n)(n-1)}$, $\Delta_{(n+1)(n)}$) are such that the operating point of the vehicle defined by the speed at the wheel (V) and the acceleration pedal depression (E) when the driver begins to brake becomes lower than at least one ($C_{(n+1)(n)} + \Delta_{(n+1)(n)}$) of the new downshift laws.

wherein the transmission is downshifted directly by more than one transmission ratios if the calculated gaps ($\Delta_{(n)(n-1)}$, $\Delta_{(n+1)(n)}$) are such that the operating point of the vehicle (V,E) when the driver begins to brake becomes lower than more than one of the new downshift laws.

2. (Currently amended): Method for controlling according to claim 1, ~~characterized in that~~ wherein the calculation of the gap ($\Delta_{(n)(n-1)}$) of the gear shifting law in activity comprises the following steps:

a) determining by fuzzy logic, for an engaged transmission ratio, for a depression (E) of the acceleration pedal equal to zero and from the deceleration of the vehicle due to braking (Γ_{veh}), the duration of braking ($T_{braking}$), the speed of the vehicle (V_{veh}) and the load of the vehicle (Q), an interval (I) of speeds of the input shaft of the gearbox of the engine in which downshifting must be triggered, this interval (I) comprising an upper limit (Ω_{Sport}) which corresponds to a sportive driving style and a lower limit (Ω_{Eco}) which corresponds to an economical driving style,

b) determining by linear extrapolation as a function of a sportivity index ($I_{sportivity}$) of the driving style of the driver, itself determined by fuzzy logic, and as a function of the speeds (Ω_{Eco}) and (Ω_{Sport}) calculated previously, the speed ($\Omega_{threshold}$) of the input shaft of the gearbox of the engine below which downshifting must be triggered,

c) converting the speed ($\Omega_{threshold}$) of the input shaft of the gearbox ~~at~~ to a speed of the vehicle at the wheel ($V_{veh(n)(n-1)}$) for each gear (N), this speed ($V_{veh(n)(n-1)}$)

corresponding to the position where the depression (E) of the acceleration pedal is zero,

d) calculating by linear interpolation the gap ($\Delta_{(n)(n-1)}$) between the position where the depression (E) of the acceleration pedal is zero and the position where the depression (E) of the acceleration pedal is equal to the arbitrary threshold ($E_{threshold}$) of the depression of the acceleration pedal,

e) verifying that the gap ($\Delta_{(n)(n-1)}$) is above or equal to zero, otherwise keeping the result obtained with the standard dowhshift law.

3. (Currently amended): Automatic or automated transmission of a motor vehicle, ~~characterized in that it comprises a method for controlling~~ which controls automatic or automated transmission downshift used for power braking according to the method of claim 1.

4. (Currently amended): Automatic or automated transmission of a motor vehicle, ~~characterized in that it comprises a method for controlling~~ which controls automatic or automated transmission downshift used for power braking according to the method of claim 2.

5. (New): Method for controlling according to claim 1, wherein the speed of the vehicle at the wheel ($V_{(n)(n-1)}$, $V_{(n+1)(n)}$) corresponding to the depression zero of the acceleration pedal according to each downshift law is calculated by fuzzy logic.

6. (New): Method for controlling according to claim 5, wherein the speed of the vehicle at the wheel ($V_{(n)(n-1)}$, $V_{(n+1)(n)}$) corresponding to the depression zero of the acceleration pedal according to each downshift law is calculated as a function of the deceleration of the vehicle due to braking (Γ_{veh}), the duration of braking ($T_{braking}$), the speed of the vehicle (V_{veh}) and the load of the vehicle (Q).

7. (New): Method for controlling according to claim 6, wherein the speed of the vehicle at the wheel ($V_{(n)(n-1)}$, $V_{(n+1)(n)}$) corresponding to the depression zero of the acceleration pedal according to each downshift law is calculated as a function of a sportivity index ($I_{sportivity}$) of the driving style of the driver, itself determined by fuzzy logic.

8. (New): Method for controlling according to claim 7, comprising:

a) determining by fuzzy logic, for an engaged transmission ratio, for a depression (E) of the acceleration pedal equal to zero and from the deceleration of the vehicle due to braking (Γ_{veh}), the duration of braking ($T_{braking}$), the speed of the vehicle (V_{veh}) and the load of the vehicle (Q), an interval (I) of speeds of the input shaft of the gearbox of the engine in which downshifting must be triggered, this interval (I) comprising an upper limit (Ω_{Sport}) which corresponds to a sportive driving style and a lower limit (Ω_{Eco}) which corresponds to an economical driving style,

b) determining by linear extrapolation as a function of a sportivity index ($I_{sportivity}$) of the driving style of the driver, itself determined by fuzzy logic, and as a function

of the speeds (Ω_{Eco}) and (Ω_{Sport}) calculated previously, the speed ($\Omega_{threshold}$) of the input shaft of the gearbox of the engine below which downshifting must be triggered,

c) converting the speed ($\Omega_{threshold}$) of the input shaft of the gearbox to the speed of the vehicle at the wheel ($V_{veh(n)(n-1)}$, $V_{veh(n+1)(n)}$) corresponding to the depression zero of the acceleration pedal for each gear (N).

9. (New): Method for controlling according to claim 8, wherein the gap ($\Delta_{(n)(n-1)}$, $\Delta_{(n+1)(n)}$) is calculated by linear interpolation between the position where the depression (E) of the acceleration pedal is zero and the position where the depression (E) of the acceleration pedal is equal to the arbitrary threshold ($E_{threshold}$) of the depression of the acceleration pedal.

10. (New): Method for controlling according to claim 1, wherein the gap ($\Delta_{(n)(n-1)}$, $\Delta_{(n+1)(n)}$) is calculated by linear interpolation between the position where the depression (E) of the acceleration pedal is zero and the position where the depression (E) of the acceleration pedal is equal to the arbitrary threshold ($E_{threshold}$) of the depression of the acceleration pedal.

11. (New): Method for controlling according to claim 1, comprising verifying that the gap ($\Delta_{(n)(n-1)}$) is above or equal to zero, otherwise keeping the result obtained with the standard dowhshift law.